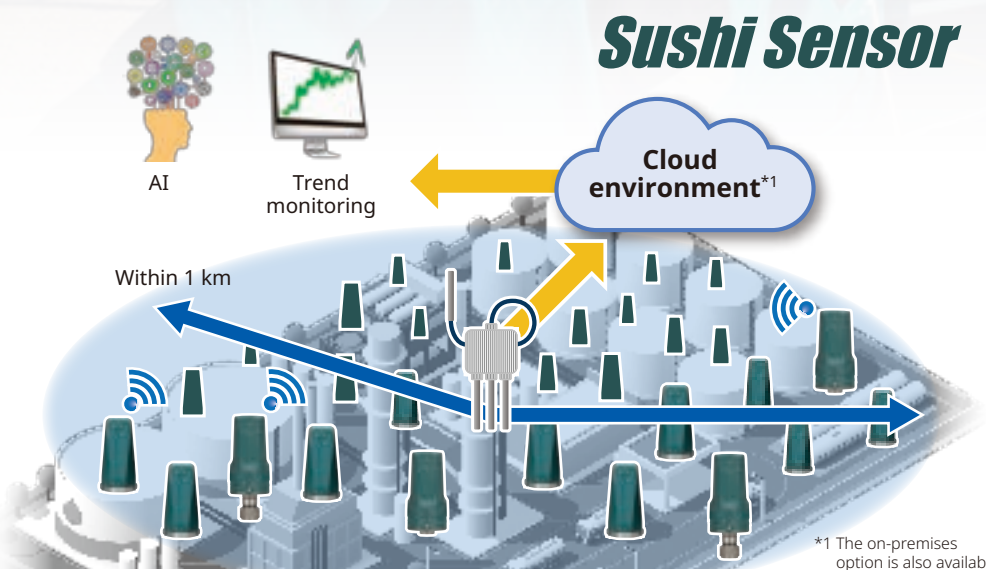


A Wireless Solution for the Industrial IoT

To improve the availability ratio and profitability of plants, timely identification of health conditions and efficient maintenance of aged equipment are required. Various sensing technologies are needed to monitor conditions and maintain diverse equipment. In order to maintain equipment distributed across a plant efficiently with limited man-hours, quantification of measurement data and automated data acquisition and storage systems are required.



● Sensing

Sushi Sensor measures vibration, temperature, and pressure as data for maintaining equipment. The measured sensor data are stored in host systems such as the cloud or the on-premises via wireless communication.

● Optimizing data

Users can identify equipment conditions by trend monitoring in the cloud or the on-premises, and then plan and perform maintenance efficiently, tailored to the equipment conditions.

Comprehensive monitoring the conditions of the whole plant helps create priorities of equipment risks and maximize investment in equipment maintenance in a balanced manner.

Benefits

- Sushi Sensor automatically acquires data from equipment including those in high places and hazardous areas. Using the data online helps reduce inspection man-hours.
- Sushi Sensor helps quantify and visualize inspection results that have depended on the intuition and experience of individual field operators, on the domain knowledge in the field, and practical know-how.
- Sushi Sensor helps reduce variations in inspection quality due to differences in the skill and experience of operator rounds.
- Equipment trend monitoring with Sushi Sensors enables early detection of signs of abnormalities without overlooking them.

Features of Sushi Sensor

● Easy installation

- Compact, lightweight, battery-powered sensors.
- Operable in harsh environments including hazardous areas (waterproof, dust-proof, and explosionproof).
- The LoRaWAN standard enables long-distance communication of up to 1 km, and thus flexible installation.

● Easy setting

- Parameters can be set with a smartphone via near-field communication (NFC).

● Easy data collection and monitoring

- Data can be collected over a wide area via long-distance wireless communication.
- Collected data can be accessed from user applications in the cloud.



Wireless Pressure Sensor



XS110A

XS530

● Features

The XS530 Pressure Measurement Module operates as a battery-powered wireless pressure sensor when combined with the XS110A Wireless Communication Module. This sensor measures the gauge pressure of gases and liquids in a piping and transmits the measurement data to the host systems via wireless communication. The battery can be replaced by removing only the wireless communication module without dismantling the measurement module from the piping.

● Applications

- Online pressure monitoring of gauges
- Leakage monitoring of valves
- Clogging monitoring of piping and filters

Measurement data	Gauge pressure Process Temperature Limits: -40 to 120°C (-40 to 248°F) Measured fluid: gases, liquids
Measurement range	-0.1 to 5 MPa or -0.1 to 35 MPa
Update time	1 minute to 3 days
Battery life	10 years (update time: 1 hour ^{*2}), battery replaceable
Dimensions and weight ^{*3}	188 × ø68 mm, 1 kg or less
Explosionproof	ATEX, IECEx, FM, CSA

Wireless Temperature Sensor



XS110A

XS550

Thermocouple^{*4}

● Features

The XS550 Temperature Measurement Module operates as a battery-powered wireless temperature sensor when combined with the XS110A Wireless Communication Module and a thermocouple. The sensor supports 2 inputs of IEC standard thermocouples (9 types including Type B, E, J) and transmits the measurement data to the host systems via wireless communication. The battery can be replaced by removing only the wireless communication module without dismantling the measurement module from the pipe mounting.

● Applications

- Identifying the failed stage in multistage heat exchangers
- Monitoring energy loss due to steam leakage
- Temperature monitoring of tanks and firebricks

Measurement data	Temperature, 2 points (non-insulated)
Sensor type	Thermocouple of types B, E, J, K, N, R, S, T, and C
Update time	1 minute to 3 days
Battery life	10 years (update time: 1 hour ^{*2}), battery replaceable
Dimensions and weight ^{*3}	141 × ø68 mm, 800 g or less
Explosionproof	ATEX, IECEx, FM, CSA

Wireless Vibration Sensor



XS770A

● Features

The XS770A is a wireless vibration sensor with the sensor and wireless communication functions integrated in a unit. The XS770A measures vibration (velocity and acceleration) along the X, Y, and Z axes and 3-axis composite in addition to monitoring the surface temperature of the bottom. The measured data are transmitted to the host systems via wireless communication. The XS770A can be mounted easily by a screw or a magnet.

● Applications

- Vibration monitoring of agitators
- Vibration monitoring of cooling tower fans
- Vibration monitoring of bearings in intake and exhaust blowers

Measurement data	Velocity (RMS), acceleration (peak), and surface temperature Axes: X, Y, Z axes and 3-axis composite Frequency range: 10 Hz to 1 kHz
Measurement range	Velocity: 0 to 20 mm/s Acceleration: 0 to 130 m/s ² Surface temperature: -20 to 85°C
Update time	1 minute to 3 days
Battery life	4 years (update time: 1 hour ^{*2}), battery replaceable
Dimensions and weight	97 × 46 × 46 mm, 260 g
Explosionproof	ATEX, IECEx, FM, CSA

*2 Ambient temperature: 23 ± 2°C

*3 Dimensions and weight may depend on the specifications selected.

*4 Thermocouple and cable gland are not included in the product.

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[Ed:02/b]

Printed in Japan, 107(KP)